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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/650,084 | 08/29/2000 | Takeo Suzuki | 196744US2 | 9184 |

22850 7590 02/25/2004

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
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ALEXANDRIA, VA 22314

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| EXAMINER |
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LUGO, DAVID B

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| ART UNIT | PAPER NUMBER |
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2634

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DATE MAILED: 02/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/650,084

Applicant(s)

SUZUKI ET AL.

Examiner

David B. Lugo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☒ Claim(s) 13-20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 August 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>4 / 8-29-00</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. Figures 16 and 17 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claims 1-20 are objected to because of the following informalities:
- a. Claim 1, line 1, "in the" should be --in a--.
 - b. Claim 2, line 5, "the incoming" should be --an incoming--.
 - c. Claim 5, line 5, "the incoming" should be --an incoming--.
 - d. Claim 6, line 1, "in the" should be --in a--.
 - e. Claim 7, line 5, "for respective" should be --for the respective--.
 - f. Claim 8, line 5, "the incoming" should be --an incoming--.
 - g. Claim 10, line 5, "for respective" should be --for the respective--.
 - h. Claim 12, line 5, "the incoming" should be --an incoming--.
 - i. Claim 13, line 1, "in the" should be --in a--.
 - j. Claim 13, lines 24 and 26, "ranking" should be --rank--.
 - k. In claim 14, applicant recites in lines 4-8 that the apparatus further comprises a "plurality of interference cancellation units" including the same limitations of the interference cancellation units recited in lines 8-12 of claim 13. Accordingly, when "said interference cancellation units" is later recited in line 17 of claim 14, it is unclear which

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interference cancellation units are being referred to, i.e., the interference cancellation units recited in claim 13 or those recited in claim 14, or whether the interference cancellation units recited in each of claims 13 and 14 refer to the same components.

Similarly, claims 13 and 14 each introduce a rank determination unit and a rank updating unit, and it is unclear which is referred to in lines 19 and 21 of claim 14, respectively.

- l. Claim 14, lines 19 and 21, "ranking" should be --rank--.
- m. Claim 15, line 5, "for respective" should be --for the respective--.
- n. Claim 16, line 5, "for respective" should be --for the respective--.
- o. Claim 20, line 5, "the incoming" should be --an incoming--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.
5. Claims 1 and 6 define a single means or element that does not appear in combination with another recited element, and is thus subject to an undue breadth rejection under 35 U.S.C. 112, first paragraph. See MPEP § 2164.08(a).

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Wijting et al.,

“Groupwise serial multiuser detectors for multirate DS-CDMA”.

8. Regarding claim 1, Wijting et al. disclose a sequential interference cancellation system, where cancellation is done in successive order, starting with the users transmitting at the highest data rate (see p. 837, left hand column, first paragraph under heading III).

9. Claims 1 and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by Uesugi et al. U.S. Patent 6,526,271.

10. Regarding claims 1 and 6, Uesugi et al. discloses an interference cancellation apparatus in Fig. 9 where a user with a high transmission rate having a high required user quality is designated as a first user (col. 15, lines 24-39), and a replica is generated to cancel the interference effects of the first users on the other users (col. 15, line 64 to col. 16, line 3), where Uesugi et al. further disclose that additional users may be ranked (col. 27, lines 45-51).

Allowable Subject Matter

11. Claims 13-20 would be allowable if rewritten or amended to overcome the objections set forth in this Office action.

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Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Lee U.S. Patent 6,574,204 teaches ranking used in an interference cancellation system based on known transmission information.

Suzuki U.S. Patent 5,953,369 teaches a serial interference canceler with channel ranking.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **David B. Lugo** whose telephone number is **(703) 305-0954**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Stephen Chin**, can be reached at **(703) 305-4714**.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

P.O. Box 1450

Alexandria, VA 22313-1450

or faxed to:

(703) 872-9306

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is 703-305-0377.

dl
2/13/04


YOUNG T. TSE
PRIMARY EXAMINER